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IN REPLY REFER TO:

5090

18221:RMJ:cag

SEP 15 1998

U.S. Environmental Protection Agency
Region III
Federal Facilities Branch
Attn: Mr. Harry Harbold, 3HW50
1650 Arch Street
Philadelphia, Pennsylvania 19103

Re: Final Remedial Investigation For Site 2, NM Slag
Pile, Naval Base, Norfolk, Virginia

Dear Mr. Harbold:

Four copies of the "Final Remedial Investigation, Site 2, NM Slag Pile, Naval Base Norfolk" dated August 1998, have been forwarded to you under separate cover. This document includes the final Human Health Risk Assessment and the Final Ecological Risk Assessment. In addition, please find enclosed responses to previous EPA Region III comments on the "Draft Final Human Health Risk Assessment" dated May 1998.

It is the Navy's intention that this is a final document and no further revisions are necessary. If you disagree with this assessment, or if additional information is required, please contact the Remedial Project Manager, Mr. Randy Jackson, at (757) 322-4587.

Sincerely,

N. M. JOHNSON, P.E.

Head

Installation Restoration Section
(North)

Environmental Programs Branch

Environmental Division

By direction of the Commander

Enclosures

**Response to EPA Region III comments dated July 28, 1998
on the May 1998 Draft Final Human Health Risk Assessment**

EPA Region III comments are printed in bold print followed by the Navy responses

1. **Section 2.1.1, Data Evaluation and Selection, Groundwater.** The section states the use of filtered or unfiltered groundwater samples is based upon the exposure scenario. E.g., Filtered samples will be used for potable scenarios or scenarios involving exposure to groundwater from wells and unfiltered samples will be used in scenarios where there is potential for direct contact. The separate evaluation of groundwater samples based on filtered and unfiltered samples and the particular scenario is an approach not generally used by EPA. Therefore, I recommend that this approach be approved by the site assigned Hydrogeologist, William McKenty.

The use of filtered versus unfiltered groundwater data based on the exposure scenario is discussed in the Norfolk Risk Assessment Consensus Agreements which have been approved and signed by the Navy, VDEQ, USEPA, and Navy contractors. Therefore, it should not be necessary for additional approval from USEPA.

2. **Table 2, Human Health Screening of Analytical Data** indicates footnote 5 as hexavalent chromium values used. However, footnote 5 is also used under the groundwater media. In other words, footnote 5 is used twice. Please assign a different numerical value for the groundwater media and a reference in the corresponding legend.

The Navy will correct footnotes on Table 2.

3. **The following contaminants have generic SSLs, for transfer from soil to air, which should be included in Table 2.** Bis(2-ethylhexyl)phthalate, di n-butylphthalate, aldrin, alpha-chlordane, dieldrin, gamma-chlordane, arsenic, barium, beryllium, cadmium, chromium, and nickel. These values can be located in EPA's "Soil Screening Guidance: Technical Background Document," May 1996, Appendix A-1. Chromium (VI) is the only contaminant that exceeds the generic SSL for transfer from soil to air. A site specific value should be calculated in order to provide a more accurate SSL level for this contaminant.

As mentioned in the text, SSLs for SVOCs and inorganics were not calculated following the USEPA Soil Screening Guidance. SSLs for transfer from soil to air for SVOCs and inorganics would be several orders of magnitude higher than the ingestion RBCs and would not change the COPCs. Footnote 9 will be changed to include this reasoning.

4. **Table 3, Summary of Chemicals of Potential Concern** lists two (2) samples for upgradient groundwater. However, according to EPA Response to Comments Memorandum data January 5, 1998, four (4) background groundwater samples were collected.

Table 3 will be corrected to indicate 4 samples were collected.

5. **Table 3, Summary of Chemicals of Potential Concern.** Minimum and maximum detected concentrations for iron were recorded incorrectly. Please reverse the results.

Table 3 will be corrected, numbers will be reversed.

6. **Table 6. The log-normal standard deviation for iron in surface soil was used, although the result for W-test column reports inclusive (normal). The normal standard deviation should be reported.**

Table 6 will be corrected. The correct standard deviation will be included on Table 6 for iron.

7. **Table 6. The W-test results for arsenic in subsurface soil reports the results as inconclusive (lognormal) however, the reported concentration used to determine risk is the 95% UCL.**

As discussed in the text and Table H-6, if the W-test is inconclusive and the sample population greater than 10, the lognormal distribution will be assumed and lognormal statistics used.

8. **Please check the HQ for background groundwater dermal exposure to beryllium for the Construction Worker. It appears that an exposure point concentration of .00012 mg/L was used instead of .0012 mg/L. See Table K-6.**

The exposure concentration for beryllium in Table K-6 is 1.2 µg/L, which is equivalent to 0.0012 mg/L.

9. **The footnote at the end of Table F-2 is confusing. Generally, there are more constituents detected in unfiltered samples than filtered samples. Please explain? Further, when does the following footnote apply? "Dissolved background groundwater concentrations used because more constituents were detected in the dissolved versus the total."**

The footnote is incorrect and will be deleted.

10. **Table F-12 - Inhalation of Volatiles from Groundwater During Construction; Inhalation Exposure Concentrations Calculated Using a Two-Film Volatilization Model, Table F-19 - Inhalation of Volatiles from Groundwater for the Agriculture Worker, and F-26 - Inhalation of Volatiles from Groundwater for the Car Washer should be viewed by EPA's Air/Superfund Coordinator, Patricia Flores-Brown for completeness.**

Patricia Flores-Brown was consulted and suggested use of the Screen 3 model for dispersion modeling for all of the inhalation from groundwater scenarios. Use of the two-film volatilization model and modified shower model to calculate emission rates was not discussed with Patricia Flores-Brown.

11. **Table F-21. Please check the Daily Intake (DI) calculation for the Agriculture Worker Carcinogenic Risks for Groundwater Inhalation Exposure**

Daily intake calculation in Table F-21 will be corrected.

Re: Final Remedial Investigation For Site 2, NM Slag
Pile, Naval Base, Norfolk, Virginia

Copy to:

COMNAVBASE Norfolk (Ms. Dianne Bailey, N45)

VDEQ (Mr. Devlin Harris)

~~Administrative Record File (COMNAVBASE Norfolk)~~

CH2M-HILL (Mr. Jack Robinson)